

CLAIMS

1. Purified mammalian sensory neuron sodium channel protein, wherein the sodium channel is insensitive to tetrodotoxin.

5 2. The sodium channel protein of claim 1 wherein said protein is derived from dorsal root ganglia.

3. The sodium channel protein of claim 2 wherein the sodium channel protein is a rat protein.

4. The sodium channel protein of claim 2 wherein the sodium channel protein is a human protein.

10 5. The sodium channel protein of claim 3 wherein said protein comprises the amino acid sequence shown in SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6 or SEQ ID NO: 8.

6. The sodium channel protein of claim 5 wherein said protein comprises the amino acid sequence of SEQ ID NO:2.

15 7. The sodium channel protein of claim 3 wherein said protein comprises the amino acid sequence encoded by the insert deposited in NCIMB deposit number 40744.

8. A purified nucleic acid sequence encoding the sodium channel protein of claims 1-7 or a complementary strand thereof.

20 9. The purified nucleic acid sequence of claim 8 wherein said nucleic acid sequence comprises the coding portion of the nucleic acid sequence shown in SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5 or SEQ ID NO: 7.

210. The purified nucleic acid sequence of claim 9 wherein said nucleic acid sequence comprises the coding portion of the nucleic acid sequence shown in SEQ ID NO:1.

25 11. The purified nucleic acid that hybridizes to strand of claim 8 or claim 10.

12. A purified nucleic acid sequence encoding rat dorsal root ganglia sodium channel protein which comprises the sequence of the coding portion of the insert deposited in NCIMB deposit number 40744 or a complementary strand thereof.

13. A vector comprising a nucleic acid sequence of claims 8-12.

14. A host cell transformed or transfected with a nucleic acid sequence of claims 8-12.

15. A method for identifying modulators of a mammalian sensory neuron sodium channel, which channel is insensitive to tetrodotoxin, comprising contacting a test compound with said channel and detecting the activity of said channel.

16. An antibody specific for the sodium channel protein of claim 1.

5           17. A method of producing a mammalian sensory neuron sodium channel protein, wherein the sodium channel is insensitive to tetrodotoxin, comprising expressing said protein in a host cell transformed with a nucleic acid sequence coding for said protein.

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